

Serial No. 09/545,334
Group Art Unit: 1638

IN THE CLAIMS:

1. (Currently amended) A method for producing fertile, transgenic plants ~~capable of the regulated expression of a cytokinin modulating gene in developing seeds wherein expression, in developing seeds and/or related maternal tissue, of a polynucleotide encoding a cytokinin biosynthetic or cytokinin catabolic enzyme is modified relative to expression in an untransformed but otherwise isogenic plant,~~ comprising:
introducing into ~~transforming~~ plant host cells ~~with~~ a genetic construct ~~capable of preferential temporal and/or spatial expression of a cytokinin modulating gene in a developing seed under conditions sufficient for the stable integration of the construct into the genome of said cells, said construct comprising a tissue-preferred, tissue-specific, or temporally-regulated promoter driving expression in developing seeds or related maternal tissue, wherein said promoter is operably linked to an isolated polynucleotide encoding either a cytokinin biosynthetic enzyme or a cytokinin catabolic enzyme, wherein the isolated polynucleotide is expressed in the transformed plant cell;~~ and
regenerating and recovering said fertile transgenic plants.
2. (Currently amended) The method according to Claim 1 wherein the ~~introduction of said construct transformation~~ is carried out by a process selected from the group consisting of electroporation, PEG poration, particle bombardment, silicon fiber delivery, microinjection, and Agrobacterium-mediated transformation.
3. (Currently amended) The method according to Claim 2 wherein said process of ~~introduction~~ is particle bombardment.
4. (Currently amended) The method according to Claim 2 wherein said process of ~~introduction~~ is Agrobacterium-mediated transformation.
5. (Canceled)
6. (Canceled)
7. (Currently amended) The method according to Claim 1 wherein said ~~seed host cells are~~ is from a monocotyledonous plant and said promoter is ~~selected from the group consisting of maize 15KD zein, 22KD zein, 27KD gamma-zein, waxy, shrunken-1, shrunken-2, globulin-1, elm-1, end1, end 2, and gzw64a, and barley ltp2.~~
8. (Currently amended) The method according to Claim 5-1 wherein said promoter directs embryo-preferred expression.
9. (Withdrawn)

Serial No. 09/545,334
Group Art Unit: 1638

10. (Currently amended) The method according to Claim 1 wherein said promoter directs endosperm-preferred expression.
11. (Withdrawn)
12. (Canceled)
13. (Currently amended) The method according to Claim 1 wherein said ~~modulating gene~~ isolated polynucleotide encodes a cytokinin biosynthetic enzyme.
14. (Currently amended) The method according to Claim 13 wherein said ~~modulating gene~~ isolated polynucleotide encodes isopentenyl ~~transferase~~ transferase.
15. (Canceled)
16. (Canceled)
17. (Currently amended) A fertile transgenic plant comprising a genetic construct stably integrated into the genome thereof, said construct ~~capable of the temporal and/or spatial modulation of cytokinin levels in developing seed of said plant~~ comprising a tissue-preferred, tissue-specific, or temporally-regulated promoter driving expression in developing seeds and/or related maternal tissue, wherein said promoter is operably linked to an isolated polynucleotide encoding a cytokinin biosynthetic enzyme or a cytokinin catabolic enzyme.
18. (Canceled)
19. (Canceled)
20. (Currently amended) The plant according to Claim ~~18~~ 17 wherein said ~~seed plant~~ is from a monocotyledonous plant and said promoter is selected from the group consisting of maize 15KD zein, 22KD zein, 27KD gamma-zein, waxy, shrunken-1, shrunken-2, globulin-1, cim-1, end1, end 2, and gzw64a, and barley htp2.
21. (Currently amended) The plant according to Claim ~~18~~ 17 wherein said promoter directs ~~embryo-preferred expression~~.
22. (Withdrawn)
23. (Currently amended) The plant according to Claim ~~18~~ 17 wherein said promoter directs endosperm-preferred expression.
24. (Withdrawn)
25. (Canceled)
26. (Currently amended) The plant according to Claim ~~18~~ 17 wherein said ~~modulating gene~~ isolated polynucleotide encodes a cytokinin biosynthetic enzyme.

Serial No. 09/545,334
Group Art Unit: 1638

27. (Currently amended) The plant according to Claim 26 wherein said ~~modulating gene~~ isolated polynucleotide encodes isopentenyl tranferase transferase.
28. (Canceled)
29. (Canceled)
30. (Currently amended) An isolate of recombinant DNA molecule comprising a genetic ~~construct that comprises~~ a promoter directing temporal and/or spatial gene expression in plant seed seeds and/or related maternal tissue, wherein said promoter is operatively operably linked to a cytokinin modulating gene an isolated polynucleotide encoding either a cytokinin biosynthetic enzyme or a cytokinin catabolic enzyme.
31. (Canceled)
32. (Currently amended) The DNA molecule according to Claim 30 wherein said seed is seeds are from a monocotyledonous plant and said promoter is selected from the group consisting of maize 15KD zein, 22KD zein, 27KD gamma-zein, waxy, shrunken-1, shrunken-2, globulin-1, cim-1, end1, end2, and gzw64a, and barley ltp2.
33. (Currently amended) The DNA molecule according to Claim 30 wherein said promoter directs embryo-preferred expression.
34. (Withdrawn)
35. (Currently amended) The DNA molecule according to Claim 30 wherein said promoter directs endosperm-preferred expression.
36. (Withdrawn)
37. (Canceled)
38. (Currently amended) The DNA molecule according to Claim 30 wherein said ~~modulating gene~~ isolated polynucleotide encodes a cytokinin biosynthetic enzyme.
39. (Currently amended) The DNA molecule according to Claim 38 wherein said ~~modulating gene~~ isolated polynucleotide ~~encodes~~ isopentenyl tranferase transferase.
40. (Canceled)
41. (Canceled)
42. (Currently amended) Host plant cells having stably introduced therein comprising the genetic construct of Claim 30.
43. (Currently amended) A method for improving stress tolerance and yield stability in plants in need thereof comprising stably introducing into cells of said plants transforming plant host cells with a genetic construct capable of preferentially expressing cytokinin modulating genes, said construct comprising a tissue-preferred, tissue-specific, or temporally-regulated

Serial No. 09/545,334
Group Art Unit: 1638

promoter driving expression in developing seeds and/or related maternal tissue during the lag phase of plant seed development, wherein said promoter is operably linked to an isolated polynucleotide encoding either a cytokinin biosynthetic enzyme or a cytokinin catabolic enzyme, and regenerating and recovering plants from said cells, wherein the introduced DNA is expressed in the transformed plants and said regenerated plants exhibit improved stress tolerance and yield stability.

44. (Currently amended) The method according to Claim 43 wherein said preferential expression occurs from about -14 14 days prior to pollination to about 25 days after pollination.
45. (Original) The method according to Claim 43 wherein said preferential expression occurs from about 4 to about 21 days after pollination.
46. (Original) The method according to Claim 43 wherein said preferential expression occurs from about 4 to about 12 days after pollination.
47. (Original) The method according to Claim 43 wherein said preferential expression occurs from about 8 to about 12 days after pollination.
48. (Withdrawn)
49. (Currently amended) The method according to Claim 4 43 wherein the cytokinin modulating gene isolated polynucleotide ~~is selected from the group consisting of genes encoding~~ encodes a cytokinin biosynthetic enzymes, cytokinin catabolic enzymes, ~~cytokinin catabolic enzyme antagonists and cytokinin biosynthetic enzyme agonists.~~
50. (Withdrawn)
51. (Withdrawn)
52. (Withdrawn)
53. (Currently amended) The ~~plant~~ method according to Claim 48 49 wherein the cytokinin modulating gene is selected from the group consisting of genes encoding cytokinin biosynthetic enzymes, cytokinin catabolic enzymes, cytokinin catabolic enzyme antagonists and cytokinin biosynthetic enzyme agonists said isolated polynucleotide encodes isopentenyl transferase.
54. (Withdrawn)
55. (Withdrawn)
56. (Withdrawn)
57. (Canceled)

Serial No. 09/545,334
Group Art Unit: 1638

- 58. (Withdrawn)
- 59. (Withdrawn)
- 60. (New) The method of Claim 1 wherein said construct comprises the end2 promoter operably linked to a polynucleotide encoding isopentenyl transferase.
- 61. (New) The plant of Claim 17 wherein said construct comprises the end2 promoter operably linked to a polynucleotide encoding isopentenyl transferase.
- 62. (New) The isolated recombinant DNA molecule of Claim 30 wherein said molecule comprises the end2 promoter operably linked to a polynucleotide encoding isopentenyl transferase.
- 63. (New) The method of Claim 43 for improving stress tolerance and yield stability in plants, wherein said construct comprises the end2 promoter operably linked to a polynucleotide encoding isopentenyl transferase.